Sextant Observations of the Great Comet (b), 1882. By Captain G. Pochrane.

(*Communicated by Capt. H. Toynbee, R.N.*)

1882, Oct. 5. $4^h\ 30^m$ a.m. saw the comet for the first time through some breaks in the clouds; could not make any observation.

Oct. 5, $18^h\ 57^m$ G.M.T., the comet in full view, very large, its bearing from ship S.E., its altitude being 5° 4′, and distance from Moon's upper limb 36° 8′, its tail trending to W.S.W.

Oct. 7, $18^h\ 5^m$ G.M.T., in lat. 48° 38′ N. Long. 20° 4′ W. Observed altitude of comet's head 4° 25′; length from head to tail 14° 50′; its greatest width 1° 20′; distant from the Moon 16° 35′; Moon's altitude 20° 40′; distance of comet's head from *Regulus* 23° 54′; altitude of *Regulus* 26° 37′.

The Markings on Jupiter. By W. F. Denning.

In the *Monthly Notices* for Jan. 1882, pp. 97–100, I gave some details of the remarkably swift motion of the bright equatorial spot on *Jupiter*, and, as this curious marking continues to be a conspicuous object on the surface of the planet, it may be interesting to mention some further observations made here during the present year.

In my paper above referred to, I gave the period of $44^d\ 10^h\ 42^m\ 13^s{\cdot}3$ as that in which the great velocity of the bright spot enabled it to complete a revolution of *Jupiter* relatively to the red spot, and I gave a list of conjunctions for 1882 founded on this period. These were observed here as well as circumstances permitted. For the last half of the year the following were the predicted dates of these conjunctions.

	h	m	s
1882, Aug. 3	15	14	7
Sept. 17	1	56	20
Oct. 31	12	38	33
Dec. 14	23	20	47

The phenomenon in August really occurred about $1^d\ 9^h\ 30^m$ later than predicted from observations obtained here as follows:—

	Red Spot on C.M.		White Spot on C.M.	
	h	m	h	m
1882, Aug. 5	15	12	15	4
7	16	47	16	9

On August 5 the white spot preceded the middle of the red by eight minutes, so that, allowing for the diurnal gain of

$13^m\ 24^s$ by the former, the conjunction must have occurred on Aug. 5 at $0^h\ 44^m$.

In September the conjunction took place about $1^d\ 5^h$ later than that computed. I made observations on Sept. 13 and 15, and on Sept. 17 the markings were observed by Mr. A. Stanley Williams at Brighton:—

	Red Spot on C.M.	White Spot on C.M.
	h m	h m
1882, Sept. 13	12 28	13 28
15	14 6	14 36
17	15 38·5	15 47

On Sept. 17 the white spot followed the red 8·5 minutes, so that it must have arrived at conjunction on Sept. 18 at 7^h. Near the epoch of the last conjunction at the end of October I obtained the following results:—

	Red Spot on C.M.	White Spot on C.M.
	h m	h m
1882, Oct. 25	16 59	18 32
29	10 20	10 52
30	16 10	16 22
Nov. 1	17 54	17 40

On Oct. 30 at $16^h\ 22^m$ the white spot *followed* the red twelve minutes, so that the conjunction is indicated for Oct. 31, $13^h\ 51^m$.

On Nov. 1 at $17^h\ 40^m$ the white spot *preceded* the red fourteen minutes, so that the phenomenon is shown for Oct. 31, $15^h\ 36^m$. The mean of the two values is Oct. 31, $14^h\ 43^m$, which, I believe, must be very near the truth, as the pair of observations agree very closely, and were made under extremely favourable circumstances. This conjunction has, therefore, occurred within about two hours of the epoch given last January, and thus the period of $44^d\ 10^h\ 42^m\ 13^s{\cdot}3$ derived from observations extending from Nov. 19, 1880, to Dec. 24, 1881, during which the white spot performed nine revolutions, is well confirmed. The observations of successive conjunctions show that there is a considerable departure from the average period in several cases. Thus the conjunction of Sept 26, 1881, $7^h\ 32^m$, and Nov. 10, $11^h\ 3^m$, give a period as long as $45^d\ 3^h\ 31^m$, whereas that of Sept. 18, 1882, 7^h, and Oct. 31, $14^h\ 43^m$, was only $43^d\ 7^h\ 43^m$, showing a difference of nearly two days. Since Nov. 19, 1880, which was the first conjunction of the two spots ever observed here, the great velocity of the white spot has enabled it to complete 16 revolutions of *Jupiter* relatively to the position of the red spot. The number of rotations performed during the entire period from Nov. 19, 1880, $9^h\ 23^m$, to Oct. 31, 12^h, is 1,719 for the red spot and 1,735 for the white spot.

The red spot has grown extremely faint, and its early disappearance seems very possible. On the other hand, the brilliant white spot fully maintains the striking appearance it presented in 1880, and gives promise of remaining in view for a considerable time. Should the two markings continue visible during the ensuing year, they may be observed at or near conjunction at the following times:—

	h	m	s
1883. Jan. 28	10	3	0
Mar. 13	20	45	13
Apr. 27	7	27	27
June 10	18	9	40
July 25	4	51	53
Sept. 7	15	34	7
Oct. 22	2	16	20
Dec. 5	12	58	33

The bright spot is very variable. There is a wide range in its maxima and minima. On three occasions I have failed to see any sign of it in my 10-inch Browning Reflector, though, at the time of maximum, I have seen it distinctly with a $2\frac{1}{2}$-inch Ramsden object glass. This spot is the central one, and the largest of three near together on the equatorial border of the great southern belt, and is the brightest and most conspicuous of its class. It must not be confused with many other varieties of white spots distributed over the surface of *Jupiter*, which are far less permanent and, in some instances, give different periods of rotation.

Ashley Down, Bristol:
1882, *Nov.* 2.

The Fireball Radiants of August 9–11. By W. F. Denning.

In addition to the brilliant shower of Perseids which returns every year on August 9–11 there are many other meteor streams which, though of minor character, are yet distinctly marked, and occasionally supply fireballs of considerable size. I recently examined a large number of meteor catalogues, and projected the paths of many fireballs recorded on the nights of August 9–11, and, as may be readily inferred, the great majority of these proved to be Perseids, though several other radiants were well indicated by the directions of their flights. I found good showers from points near γ *Cephei*, α *Cygni*, γ *Andromedæ*, γ *Capricorni* and o *Draconis*; also more doubtful positions at $100^\circ + 63^\circ$ $249^\circ + 48^\circ$, $341^\circ + 34^\circ$, $257^\circ + 13^\circ$, $192^\circ + 79^\circ$, $253^\circ - 20^\circ$